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Gleaner

NATIONAL AGRICULTURAL COLLEGE



The Road to Streptomycin and Beyond — page 4

Bringing Progressive Agriculture to El Salvador
— page 8

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EDITORIAL

Look Before You Leap

In a recent address by President Work to the student body he pointed out the importance of maintaining a serious attitude toward our education. It can generally be stated that many students here as well as at practically all educational institutions in the country have grown lackadaisical toward their studies and in many cases have forsaken their educations simply because they feel that in view of the present crisis they may not be able to complete college at the present time.

Such an attitude indicates an inability on the part of these individuals to plan for the future. If such a futile attitude in the face of a crisis had been adopted by our forefathers, the United States would not be in the enviable position among world powers that it is in today. It is of the greatest importance that we evaluate every step we take while attending college for everything we do now will play a great part in moulding our futures.

If it becomes necessary for us to serve in the armed forces before we complete our education we will find that the mark we make now will have great bearing in whether we will be able to finish our education when the opportunity presents itself.

The beginning of a new semester is always a good time to make resolutions concerning one's intentions toward studies for the coming term. Look toward the future with foresight and resolve now to take advantage of every bit of time afforded you toward furtherance of your education.

Now is the time to make your mark!

ON THE COVER

The happy group pictured on this month's cover is attempting to coax N.A.C.'s Farm Show Holstein bull entry into a box car for shipment to Harrisburg. At the front end are Henry Hudson and "Smokey" Barbour, being assisted by Ira Mounigis, Bruce Smith and John Holzheimer.

(Story on page 5.)

Photo by Stein

THE ROAD TO STREPTOMYCIN AND BEYOND

BY NORMAN AUSLANDER '52

The soil, which for thousands of years has determined the wealth of a nation, today is being hailed as the new source of hope for the continued health of the inhabitants of the world. And in sad contrast, this discovery comes at a time when stupid ideologies are deciding the future well-being of this universe. Yet, the existence of men such as Doctor Selman A. Waksman, Professor of Microbiology at Rutgers University, New Brunswick, New Jersey, and Microbiologist at the New Jersey Experiment Station, offers mankind the incentive and inspiration to pursue peaceful, natural channels in the exploitation of nature's phenomena.

Lauded as the greatest contributor to agriculture and medicine during 1950 by the Philadelphia Society for the Promotion of Agriculture, Doctor Waksman, on Wednesday evening, December 20, 1950, at a joint meeting of the Franklin Institute and the oldest Agricultural Society in the United States, which boasts the onetime membership of George Washington and Benjamin Franklin, accepted the award, recognizing that the discovery of Streptomycin was brought about by the strivings of many men.

He noted that Pasteur first gave us the clue to the realization of the presence of antibodies. The renowned Frenchman had isolated the anthrax bacteria in the late 1800's and injected this pathogen into healthy cattle to prove that he had isolated the specific causal organism of the disease. To his dismay, the animals did not die, nor did they show any symptoms of the malady. This led the brilliant Pasteur to the conclusion that other organisms in the cattle had destroyed the anthrax bacteria.

Robert Koch, in his germ theory of disease, announced to the world that disease is not a mystical occurrence but is due to specific pathogens which could be isolated and which could not be detected by the unaided eye.

The audience was then introduced to the historical events that led to the revolutionary discovery of Streptomycin. Scientists for many years had observed the multiplication of harmful organisms

in urine when the fluid was placed in a towel, where as, quite to the contrary, the soil was sterile a few minutes after urine was placed in it.

In 1917, Grey-Smith had observed colonies of soil bacteria in petri-dishes where the phenomena of certain colonies having a clear circle around them and not allowing the existence of other bacteria in the vicinity was noted. Colonies of this type which inhibit the penetration of spreaders, be they bacteria or fungi, are known to contain actinomycetes which produces the antibody, Streptomycin.

What is Streptomycin? What is an antibody?

Streptomycin is derived from the culture filtrates of an actinomycete, *Streptomyces griseus*. The order Actinomycetales comprises a group of branching organisms which produce either by fission or by means of special conidia. It is believed by some investigators to be associated with the Hyphomycetes or molds and also with the bacteria. Therefore, it is placed in a different classification than the true bacteria (Eubacteriales), coming under the category of mold-like bacteria (Actinomycetales).

We are consequently led to the knowledge that Streptomycin is an organic compound secreted by the actinomycete, a soil bacteria. Streptomycin is an antibody because it destroys pathogens in the body, accomplishing this through its ability to be synthesized by the cell in the cell's action of ingesting or absorbing the amino acids within its walls. The antibody is able to do this because it fits as neatly as a key into a keyhole into the life processes of a cell. When the body is immune to the antibody (as in the case of tuberculars who, needing a long period cure and at first benefited by Streptomycin, build up within the body cells an immunity to the wonder drug, or in the case of some diseases being resistant to the effects of Streptomycin) then later discoveries such as Aureomycin and Chloromycin are used.

It was at this stage of the lecture that I ruminated on the evening's topic. The speaker indicated that research in any

field is not only a pure scientific pursuit. There comes a time in a person's methodical and meticulous approach to any exploratory endeavor when one must sit down and reason in a philosophical manner. The data that Pasteur, Koch and others gathered had to be correlated, developed, advanced and interpreted intelligently in the light of new discoveries, new data, new approaches. And for all those who pursue the same goal, only one can reach the answer first, so that on this particular evening Doctor Selman A. Waksman spoke as the discoverer of Streptomycin, for he clearly assimilated and disseminated the facts.

The following is Doctor Waksman's account of the research which he found necessary:

"We isolated ten thousand microorganisms from the soil. Out of these, only ten percent could be perpetuated under laboratory conditions. Of these remaining one thousand, we found that only ten percent could react effectively or destroy harmful bacteria. This left us with one hundred organisms. Ten percent of these were found to prevent disease in humans; and of these ten, only one could combat disease without injury to the body. This one was Streptomycin."

The above is a concise report which embodies the strivings of many individuals over a period of many years. Upon hearing the account, one is impressed by the varied problems confronting the bacteriologist; since for every experiment that succeeds, thousands fail.

The road beyond for Streptomycin is encouraging, especially in view of the many more antibodies that are similarly being discovered. The role of Streptomycin in animal and plant health is more and more being unveiled. The field of agriculture as well as the medical profession is discovering its benefits.

In instances where Vitamin B12 proved ineffective to herbivorous animals, the incorporation of Streptomycin in the feed ration gave excellent results. The conclusion has been advanced that the healthy, fat condition of the animals was caused by the wonder drug which neutralized the harmful effects that a

(continued on page 14)

N.A.C. Takes Awards at Farm Show

Although disqualified from competitive showing last year by a technicality, N.A.C. returned to the 1950 Pennsylvania Farm Show on January 8 at Harrisburg and walked off with many of the top prizes in the Percheron class. N.A.C.'s representatives at the annual exhibition included five Percheron horses, five Holstein heifers and one young Holstein bull.

In the Percheron stallion class, five years or older, N.A.C.'s Crebilly's Buccaneer took first place and went on to win "Reserve Senior Champion Stallion" and "Reserve Grand Champion Stallion."

Four entries represented N.A.C. in the mare class, five years and over. Rush Valley Kallion took first, Konhope III came in third, Konhope placed fifth and Coralette finished in the sixth position. Kallion went on to win "Senior Champion Mare" and finally "Grand Champion Mare."

In the Get of Sire class, N.A.C.'s entry placed second with Konhope III and Konhope. These two mares were also third in the Produce of Mare class.

Kallion and Konhope III placed first in the class for two mares belonging to one exhibitor. These two horses, with Crebilly's Buccaneer, also took first place in the class of Stallion and Two Mares, any age.

A total of eleven ribbons and a banner were won by the Percheron entries. Students who groomed the horses and took part in the showing were Frank LaRosa, Bob Holland, O. M. Vicars and John Toor. But much of the credit is due to a man who is known far and wide in the horse showing field, Animal Husbandry Instructor, Mr. Harry Hopkins.

In the Holstein division, where there were 269 entries, N.A.C.'s heifers weren't able to place in the top five. However, in the class for bulls, one year and under eighteen months, N.A.C. Pebble Beach Piebe won fifth place.

Students who did the groom and showing of Holsteins were: Henry Hudson, Donald Barbour, Ira Mougis, John Holzheimer and Bruce Smith. Prof. Morris Plevan hopes to have better luck next year with his Holstein entries.

Food Industry Degree Approved for N.A.C.

Approval has been received, effective January 25, from the Department of Public Instruction of the Commonwealth of Pennsylvania for the major in Food Industry at the National Agricultural College.

Senior students now enrolled in this course will receive the degree of Bachelor of Science in Food Industry upon graduation.

Agricultural Quiz

1. A poultry flock in order to be profitable should have an average production of at least
(a) 10% (b) 30% (c) 50%
2. Wheat, tomatoes and cabbage plants are normally
(a) Insect (b) Wind (c) Self-pollinized
3. Alfalfa, clover and soybeans weigh about
(a) 20 (b) 40 (c) 60 lbs./bu.
4. Rutgers is the name of a variety of
(a) Corn (b) Wheat (c) Tomatoes
5. In Bucks County pure alfalfa should be planted no later than
(a) April 30 (b) Aug. 30 (c) Oct. 30
6. Chicks are normally put on range at the age of
(a) 12 (b) 16 (c) 20 weeks
7. A general rule for feeding scratch to chickens is to feed all that can be consumed in
(a) 10 (b) 20 (c) 30 minutes
8. A rule of thumb for feeding cattle is
(a) 6 (b) 3 (c) 9 lbs. of grain for every pound of milk produced
9. A heifer should be first bred at the age of about
(a) 12 (b) 18 (c) 24 months
10. Hogs should be washed at the age of
(a) 8 (b) 14 (c) 17 weeks

(Answers on page 12)

Junior Prom, March 3rd

The Junior Prom, set for March 3rd, promises to be a most enjoyable and memorable occasion for all who attend. The Hotel Hildebrecht in Trenton, N. J., has been selected as the site for this gala formal because that city is within easy driving distance of both New York and Philadelphia besides being more accessible to students living in New Jersey.

The Hildebrecht is on West State Street and Chancery Lane and is five minutes by bus or taxi from the Pennsylvania Railroad Station. The ballroom itself is on the ground floor of the hotel and is reached through a spacious lounge. This hall was the scene of the big formal following the Navy-Princeton football game this year.

Suitable decorations are being arranged to give the effect of a Coronation Ball, the theme of this year's prom. A Queen of the Ball will be selected during the evening and her coronation ceremony will highlight the festivities.

Music will be supplied by Elmer Hampton and his eight piece ensemble with vocal renditions by Penny Hayden, who was such a hit at last year's Senior Prom.

—△—

ALUMNI NEWS

We're still waiting to hear from all you Alumni. Let's keep this column growing!!

"Turk" Bennett announces the birth of a son, Adam. "Turk's" attending Oregon State Ag College and hopes to graduate in June. . . . We've just learned that Bob Streeper '50 was married last October 2nd. Congratulations, to Bob and the Missus. "Chick" Ginsburg '50 is in the army serving as a meat inspector in Boston. It looks as though his education at N.A.C. paid off.

"50" men have become active in the Philadelphia Chapter. Among those pitching in are Saul Goldstein, Sam Silver, Jack Pernatin, "Ace" Martin and Jim Sheaffer.

Paul Stein '51 was invited to attend a meeting of the New England Chapter in Boston by a member of the group. Arthur Feldman, while he was home on his Christmas vacation.

What's Become of the '50 Graduates?

BY GEORGE BLEIBTREU '52

Here's another N.A.C. success story for all you discouraged agriculturalists. I'm sure all of you, with the exception of the freshmen, will remember our rugged star halfback of the last three years, Joe Fulcoly. Today, eight months after graduation, he has very little time even to think about football. He has his hands more than full running his own fifty-five acre poultry plant which he plans to expand into a general farm someday.

Joe came to the National Farm School and Junior College in 1947 as a transfer student from Penn State. After a tour of service in the Army Air Corps he was looking for a more practical course in agriculture. He stayed on after helping achieve the undefeated football season of 1947 while the Junior College became the National Agricultural College and went on to specialize in Professor Raino Lanson's poultry course.

During last year's Easter vacation, Joe and his wife started looking around Bucks County with real estate agents in tow. This was the beginning of their search for the ideal poultry farm for their means. After about fifty disappointments, the Fulcolys found what they were looking for near the intersection of New Britain Road and Ferry Road in Doylestown township. This selection was a fortunate one for all concerned, since the farm not only has everything Joe was anxious for, but enabled Mr. Fulcoly senior to reside with the young folks.

Joe's father works in Philadelphia and the location of the new farm made it possible for him to commute to the city easily and continue to live in Doylestown, which his ancestors had helped to found.

With the chicks he started while still in school, Joe has established a flock of twelve hundred layers with mostly White Leghorns and some Rhode Island Reds. He has also set up an egg route for himself in Philadelphia and takes only his surplus eggs to the market here. Occasionally when his customers request it, he also brings them a meat bird for dinner.

To date, Joe cleans all his eggs by hand, but plans to buy in the immediate future a new Whirlaway washer such

This is the second in a series of articles covering the activities of a member of the Class of '50 since graduation last June.

as that operated by the college. This will save him a lot of time and will fit into his expansion program. This latter project is rather ambitious. Joe plans to put

up a new brooder house in a few weeks, following that with another poultry house, boosting his total in all to about five thousands birds.

When you hear that Joe also plans to get some feeder steers (and has the good taste to plan on Aberdeen Angus) you will realize what a job Joe has taken on.

By the way, his field crops include ten (continued on page 14)

THE WORM TURNS

BY JOSEPH BROTMAN '51

The lowly worm has in recent times been the cause of considerable controversy. Though the realization that worms are extremely beneficial to the soil has been acknowledged by some men since the beginning of the century, it has been only recently that worm culture has increased in popularity.

The tremendous capacity of our common earth-worms in rebuilding worn out soil to productivity, as well as aiding in the prevention of erosion, is well recognized both by the Soil Conservation Service and the U. S. Forest Service. "Earthworm experts" claim that an inch of new soil can be reconstructed within five years, if given enough angle-worms, and proper conditions. Ordinarily this process would take about 500 years.

When the worm turns, the earth is literally changed down to a depth of about ten feet. The worm brings subsoil minerals and other materials closer to the surface at night and then works surface humus and mold into the depths during the day. Simultaneously, the soil is aerated and nitrated with the substances left behind in the castings.

In addition, the worm grinds the soil to extreme fineness, further releasing food elements. The tiny tunnels made by the worms also permit better absorption of water, which slows down soil erosion and helps raise the water table. Evidence is also available which suggests that beneficial chemicals are released principally in the summer when earthworms normally pass through their reproductive period. What is the most surprising is that plants raised in worm-rich soil seem to offer greater resistance to insect pests.

The influences of earthworms vary widely according to the crop and soil. Crops differ in their tolerance to poor soil structure and therefore in their response to the activities of living earthworms. For instance, soybeans and clover have been found to be more stimulated than wheat and grass by earthworm activity in soil of poor structure.

It is not a difficult problem to raise earthworms by the millions, or even the billions. Worms reproduce by laying capsules, each capsule containing from 12 to 16 eggs. A procedure has been developed for recovering the capsules from the soil and then planting them like grass wherever the soil needs enrichment.

The worms are bred in humus boxes packed with damp peat moss from which the capsules are collected. One earthworm breeder claims to have bred a hybrid worm which is superior to the ordinary earthworm in reproduction, hardiness, and adaptability. He also claims that this hybrid has less tendency to travel from the soil plane where it was hatched.

Today there are fifteen earthworm farms operating throughout the country. There are approximately one and a half million earthworms in a single acre of healthy soil and it is estimated that they process about 10 tons of soil a week.

It has recently been found that ants and other soil fauna also produce beneficial effects upon crop yields. As further investigations prove and disprove new theories about earthworms, and other soil fauna, more popular interest is developing in this field.

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Bringing Progressive Agriculture to El Salvador

BY CARL LEUTNER '52

The task of bringing progressive agriculture to El Salvador will be attempted by our own José Alfaro, who hails from this tiny Central American Republic. José, who is now in his third year here at N.A.C., is majoring in Animal Husbandry, the phase of agriculture which interests him most.

This does not prevent him, however, from taking an interest in all phases of agriculture and being ever anxious to learn of new techniques and developments. He has a great incentive in his pursuit of knowledge, since he will have the opportunity to apply what he has learned to a country sorely in need of agricultural improvements of a progressive nature.

Principal Agricultural Industries

El Salvador is the smallest continental American republic, being approximately the size of the state of Maryland. It is also the most densely inhabited republic in the American Mainland, having a population of approximately two million.

There are two main classes in El Salvador, the wealthy and the poor. However, the middle class is constantly growing stronger and is far more developed than in most South or Central American republics. This rise is largely due to the selling of land and equipment to the poorer classes at extremely low costs by government agencies. The wealthy still comprise the largest group of landowners, having acquired their land through inheritance, generation after generation, from their Spanish ancestors.

El Salvador's agricultural wealth lies in its coffee trees, ranking third in the world production of coffee. The fertile soils, originating from volcanic materials and the high altitudes, are conducive to the growth of this world famous product.

Corn, however, is grown most extensively, and is used in the making of tortillas, the main food of the natives. Despite the large acreage devoted to corn, it is not of importance in world trade. Cocoa, rubber, sugar, cotton and tobacco follow coffee in importance. Large varieties of vegetables are grown, rice being the most important, and serving as a substitute for potatoes. In addition, most varieties of tropical fruits,

including managoes and papayas, are grown in abundance.

Existing Methods

Scientific agriculture in El Salvador is now in the embryonic state, but it is gradually showing signs of progress because of the numerous developments made by the *Centro Nacional de Agro-nomia*. El Salvador's Agricultural Experiment Station. The station was established approximately nine years ago with assistance of the United States, and has Salvadornian technicians and United States specialists working together with the hope of improving the republic's agriculture.

The people are skeptical of new developments brought out by the station, since the outmoded methods which are commonly practiced today, and have been in use for centuries, are deeply rooted. The feeling of skepticism gradually disappears, however, with each new development that proves itself sound and efficient. José realizes the importance of the station's work to the future of his country, and hopes to bring about full cooperation between the people and the station, thus eliminating the backward methods that still predominate.

Having been blessed with natural conditions conducive to the growth of a crop as lucrative as coffee, it is only natural that certain progressive techniques have already been adopted. The planting of Izotta as a means of controlling erosion has been in use for quite some time. Izotta is a close relative of the yucca plant grown in the U. S. as an ornamental. This is necessary since good quality coffee is grown at high altitudes where the prevailing tillable land is steep and sloping. Quality coffee can be grown successfully between two and six thousand feet. The higher the altitude, providing it doesn't exceed six thousand feet, the better the quality of the coffee.

Recently another plant, the *Crotalaria*, has been introduced for the purpose of controlling erosion on the steep slopes. In addition, *Crotalaria*, which is a legume, fixes nitrogen in the soil. Another recent innovation is the use of fertilizers in the coffee plantations. A very unorthodox method of applying

this fertilizer is in use because of the erosion-vulnerable slopes. The fertilizer is placed in holes eight to ten feet deep and four feet wide which are spaced between the trees.

The only advantage of this method is that the holes act as "catch basins" for runoff water and eroded soil. (Fallen leaves also collect in the holes and tend to soak up the imprisoned water, thus retarding leaching.) The main disadvantage is that the fertilizers are placed at too great a depth to be utilized since the coffee tree is very shallow rooted, penetrating to a depth of little more than two feet. The valuable organic matter supplied by the leaves upon decomposition also becomes unavailable to the trees because of the depth at which it forms.

The corn, which is grown so extensively, is of dual purpose, serving as food for both animals and humans. It is a form of Indian corn not at all like the corn types used in this country, which have resulted from years of controlled inbreeding and crossing. The plants receive little or no fertilization and produce dwarfed, irregular ears in small quantities.

The dairy industry in El Salvador is perhaps most in need of improvement. The milk produced is far below the amount needed to supply adequately the densely populated country. Sanitation, proper feeding, controlled breeding, and selection are not commonly practiced.

The majority of the cows comprising the dairy herds are scrubs, giving an average yield of 2000 pounds of milk annually. These cows are descendants of the stock introduced by the Spaniards in the sixteenth century, and today consist of strains of Red Poll, Holstein, Hereford and Longhorn breeds.

Since milking barns are largely nonexistent, the milking is done in the open on stone courtyards. All the milking is done by hand with each milking hand being responsible for from 17 to 20 cows. In place of stanchions, as employed in our dairy barns, the cow is kept from roving by tying her back legs with rope.

Calves are not weaned until they are approximately six months old, and as

a result, the cow becomes so attached to her calf that she will not permit herself to be milked unless it is in sight. The accommodating El Salvadorians manage to keep the cows contented by tying their calves to their front legs at milking time. In the event that the calf should die, its skin is removed and tied to the back of another calf which is tied to the mother's legs.

The unsuspecting cow, upon sniffing the ersatz calf, recognizes the scent as that of her calf, and permits herself to be milked. The milkers always manage to leave some milk for the calves and it is in this haphazard manner that they obtain their nourishment. While being milked, the cows are not fed, since concentrates and hay are not used. The only food they receive is obtained by grazing on the year round pastures.

Milk houses are not a common sight, and those that do exist are nothing more than open sheds with no refrigeration. If a farmer is located near the market, he sends his milk in daily by oxen. If this can't be done, he places the milk cans in tubs of water overnight,

and if he lives a considerable distance from the market, he makes cheese, and thus solves his marketing problems.

Poultry and eggs sold in the market come from the small flocks which all families maintain; there are no commercial meat and egg producers. The chickens are mostly scrubs and are poor layers. Roosters and hens are raised together and consequently many fertile eggs are sent to market.

Candling is not practiced, eggs are not cleaned, and since egg boxes and crates are not in use, the eggs are sold loose in the market. The birds are sold alive in the market by appearance and not by poundage. There is no such thing as a dressed bird on the El Salvadorian market.

Means of Improvement

When José completes his four year course here at N.A.C., he will return to the 2500 acre farm maintained by his father, where the conditions described above exist. José has analyzed these conditions and is prepared to introduce progressive methods, the majority of which

have already been expedited by the experiment station in El Salvador.

In addition to knowledge gleaned in classroom and practicum sessions, José has had the opportunity to observe agricultural methods in Florida and California, where climatic conditions similar to that of El Salvador exist. José has a good supply of pertinent agricultural bulletins and yearbooks from the United States Department of Agriculture, and has visited and made contacts in several eastern and southern agricultural experiment stations.

José feels that when he returns to his country he will benefit not only by the education he has received here, but by knowing where to get information, livestock, and agricultural supplies. He feels that many landowners in El Salvador are aware of the poor conditions that exist, and realize that there are ways of improving them, but do not know how to go about it, and where to get the necessary supplies. Full co-operation with the experiment station would, of course, eliminate this problem.

Of the 2500 acres owned by the Alfaro, 300 are devoted to the growing of coffee trees; approximately 1000 acres make up the vast expanse of pasture land, 400 acres of which are irrigated and green the year-round. The remainder of the land is planted in corn, cotton, tropical fruit trees and vegetables.

There are several ways in which José intends to make improvements in the coffee plantation. He plans to use more crops, particularly legumes, between the rows of trees to prevent erosion. He feels that if shallow trenches approximately two feet deep were dug instead of the eight to ten feet holes, fertilizer and organic matter from decomposed leaves would be available to the trees. He will also determine the nutrient demands of the soil and the coffee trees, and fertilize accordingly.

He intends to replace the low grade corn, now being used, with hybrid varieties developed in this country. He will introduce crop rotation, contouring, green manure crops, and fertilize, according to the demands of the soil. He also intends to use more agricultural machinery and thus do away with the wooden plow and other antique equipment.

His main goal is the improvement of the dairy herd consisting of 300 head of scrubs maintained by his father. He

(continued on page 14)



Modern farm machinery is used at the station in El Salvador to expedite experiments. Oxen and wooden plows, however, are still commonly seen on farms. Photos courtesy "Foreign Agriculture" USDA.

SPORTS SCENE

By FRANK CLANCEY '51

Hello, all you Gleaner Sports Scene readers! You have probably noticed the new name at the top of this column.—Well, I'm going to be your sports reporter for the rest of the year and I hope my work can make par for the course.

Coach Charlie Keys and his Whiz Kids really started this basketball season with a bang! The boys are on their way to another very successful season.

Last year, under Tom Miller, the N.A.C. quintet rolled up ten victories against seven defeats. This was the best basketball record ever attained by an Aggie squad. This year, with Coach Keys at the helm, we are all expecting to better this record.

The team is under a decided disadvantage in that we have only four players returning from last year's squad. These four men, senior Bill Larder and sophomores Jim Lipari, Cal Kidder, and Ed Vansant, have formed a strong backbone for this year's team. With the aid of a new frosh discovery, Hal Tannin, they make a fast and hard driving five.

This year's captain, Bill Larder, has really come a long way in his four year stay here at N.A.C. Bill has developed a good left hand shot and has used it exceedingly well to date this season. Unfortunately, he has been bothered with a very bad head and chest cold these first few games. I'm sure when the cold goes, Bill's points per game will go too—skyward.

Jim Larpi is the most improved player from last year's squad—mostly due to his conversion from a guard to a forward. Jim has really found himself in the fore court and is now leading the team in individual scoring.

Cal Kidder has taken over as this year's floor man. Cal is an excellent ball handler and one of the best in the business, barring none. Stay with us, Cal, the Navy can wait.

Last but not least, we find "Easy Ed" Vansant. Big Ed has improved his pivot shot and his general floor work. Ed has always been troubled with trying to hold on to the ball. This year we are hoping to see Ed overcome this difficulty, even if he has to use "glue." Ed, only in his second year at N.A.C., has numerous potentialities and we are de-

pending on him a great deal this season.

Our best substitute, thus far, has been Norm Auslander. He gave the crowd a thrill during the first game when he hit the mark for six points. Norm is still a little awkward, but with Coach Keys' able polishing, "Moke" will be another N.A.C. great.

Keep up the good work, men! You're well on your way to a victorious season!

Resume of Aggie Basketball

By HANK KUEHN '51

Aggies Vs. Goldey College

Coach Charlie Keys floored the National Aggie court team for their 1951 debut on Thursday evening, January 11. The Aggies really caught the fans' fancy right from the start in their flashy new green satin outfits trimmed with gold.

The Aggie quintet started with Captain Bill Larder and Jim Lipari playing the forward positions, Easy Ed VanSant jumping center with Hal Tannin and Cal Kidder holding down the guard positions. The team got rolling on the right foot, showing plenty of aggressiveness and fight. Throwing up a zone defense against Goldey, the Aggies never were headed from start to finish.

At half time the Aggies had a 26-16 advantage. With Bill Larder and Jim Lipari hitting consistently from in close, the Aggies held the lead throughout and earned a well deserved initial victory by the score of 47-42. Lipari and Larder wound up with scoring honors for the evening tallying thirteen and twelve respectively.

N.A.C.—Temple Pharmacy Game

The Green and Gold court squad tasted defeat for the first time during this infant 1951 season on January 17. Playing host to the visiting Temple Pharmacy quintet the Aggies went down fighting. The two teams were evenly matched in the height column, with the Aggies showing an inferior ability to put the ball through the basket.

The teams battled on even terms throughout the first half with the Pill-rollers holding a 27-26 lead at half time.

To leave the varsity for awhile and to turn to the Junior Varsity, this reporter can only say "You boys would find yourselves in last place in the intramural league—so let's get moving."

I've noticed that the favorite chant at all basketball games has changed from "Come on Team, Let's Go" to "Hey Abbot!"—What's the reason?????

That's it for this month, gang. I hope I'll receive a nod of approval because I'd really like to be with you next month.

At the outset of the third quarter Pharmacy started finding the hoop regularly and pulled away to a ten-point lead midway through the quarter. After calling for time out, the Aggies got reorganized to some extent and started fighting back valiantly.

At the beginning of the last period the scrapping Aggies whittled the opposition's lead to a narrow two points but never could get evened up. As a result the Aggies tasted defeat by the score of 60 to 55. The Pharmacists were without the services of their captain Lou Ravin who was on the sidelines with a badly sprained ankle. He was a thorn in the Aggies' sides last year.

Scoring for the Aggie quintet was divided proportionately amongst the starting five with Kidder and Lipari hitting for twelve points each and Hal Tannin, flashy freshman guard, tallying ten points.

Game scoring honors went to a hot "Pillroller," Roglione, who poured 19 points through the hoop.

Aggies Meet Lycoming

Our Aggies went down to their second straight defeat to a superior Lycoming College aggregation from Williamsport, Pa., on January 19. The Green and Gold quintet had nothing to be ashamed of because they really let Lycoming know they were playing in a ball game. The stubborn Aggies never said die to the visiting Blue and Gold hoopers.

Lycoming was deadly on most shots and especially from the foul line where
(continued on page 12)

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BASKETBALL RESUME

(continued from page 10)

they cashed in on 23 out of 32 chances. The game started at a rapid pace with Lycoming grabbing a 21-13 first period advantage. The Aggies came back fighting in the second period, each team scoring sixteen. Consequently the score was 37-29 when the teams left the floor at half time. An interesting sidelight was that the Aggies scored one more field goal in the first half than did Lycoming. However, Lycoming's deadly ability to make free throws is where they made up the difference.

At the outset of the final period it started to become evident that our Aggies couldn't keep pace with the torrid drive of the visitors. At this point the visitors started widening the lead. Easy Ed VanSant fouled out and his rebounding height was missed.

When the whistle blew with the Aggies on the short end of a 67-49 score, they had a right to lift their heads high even in defeat for putting up such a good showing.

Game scoring honors went to Graff of Lycoming who tallied twenty points mostly on nice set shots. For our Aggies Jim Lipari and Cal Kidder had 13 and 12 points respectively.

Fort Jay Vs. Aggies

The Aggies got back on winning ways again by scoring a decisive 67-55 victory over the visiting Army team from Fort Jay on January 24. Coach Keys' quintet had their fastbreak in high gear from the start. Before the fans realized what had happened the Aggies had a 17-3 lead at the end of the first period. Fort Jay stemmed the Bulldog attack in the second period and managed to hold their own. The score at halftime was 31-16 with the Aggies on top.

In the third period the men in khaki put up a valiant battle to get back in the ball game and succeeded in narrowing the Bulldogs' lead to 49-40. Duffy, stellar guard on the Fort Jay five, was largely responsible for the great comeback of the Army team by pouring fourteen of his game high twenty-six points through the hoop in this period. He had an assortment of "push shots" and "jump shots" which made him a dangerous man at all times.

The last period was evenly matched with the Fort Jay team tiring as time went on. Unfortunately for them they

came with only one substitute. The Aggies' high point man was Bill Larder with twenty-three points followed by Jim Lipari with sixteen points and "fancy dribbling" Cal Kidder's twelve marks.

HANK'S JOTTINGS — This is the third straight game in which Cal Kidder scored twelve points.

N.A.C. Visits Glassboro

The Aggie hoopsters took to the road for the first time this season and ventured down to Glassboro, N. J., on January 31. The trip was as successful as anticipated and consequently the Aggies returned to their home grounds licking their wounds from an 82-62 defeat.

Unable to get accustomed to the small court, the Aggies fell behind at the start and never were able to get back into the ball game. The game progressed along smooth lines throughout with no rebellious uprising. The Teachers built up a substantial 37-26 lead at halftime and kept adding to it throughout the last half. The score is not indicative of the Teachers' superiority in the mind of your reporter.

Once again a member of the opposition took scoring honors. White, a flashy forward, was deadly with "one handers" from in close and accumulated twenty-seven points for the game high. Jim Lipari, our steady sophomore forward, tallied twenty-one points followed by Hal Tannin's fourteen points.

Kings College Succumbs to Aggies

In a game that was played with an over-abundance of "fumbilitis" on the part of both teams, the Aggies evened up their season record by eking out a 55-52 win over Kings College of Delaware on February 5. The smoothness of the game was marred by numerous lost balls, poor passes, walking and other infractions.

The first period ended with the score 9-7 in favor of Kings. The Aggies started to find the range a little more consistently in the second period and left the floor at halftime with a meager 23-19 advantage. Coach Keys tried numerous combinations of players for the purpose of getting some added height in the lineup to try and stem Kings' captain Davis and Ruger from dominating the rebounds.

A few minutes after the start of the third period the insertion of Stan Caplan drew applause from the fans with his continual chasing and hawking of the Kings dribblers and shooters. The Aggies maintained the four point half-time advantage through the third quarter and took the between period breather leading 36-32.

Midway through the final period Kings lost half of their rebound team when Ruger committed his fifth foul and left the game. With Caplan and Larder hitting consistently with hook shots and layups, the Aggies built up what seemed to be a comfortable ten-point lead with about five minutes left in the game.

Kings put up a stubborn battle and retaliated with a scoring burst that whittled down the Aggie lead to one point with two and a half minutes left. The last two minutes were spine-tingling to all the spectators who were rooting the Aggies to victory. Kings desperately used a full court press and the Aggies were trying to retain possession of the ball.

When the final whistle blew the Aggie quintet left the floor with a hard earned 55-52 victory under their belts. Larder took scoring honors for N.A.C. with eighteen points followed by Stan Caplan's ten points. However, Captain Davis, of Kings, took game honors with nineteen points.

—△—

Answers to Agric. Quiz

- 1.—(c) 50%
- 2.—(c) Self pollinized
- 3.—(c) 60 pounds/bushel
- 4.—(c) Tomatoes
- 5.—(a) April 30
- 6.—(a) 12 weeks
- 7.—(a) 10 minutes
- 8.—(b) 3 pounds
- 9.—(b) 18 months
- 10.—(a) 8 weeks

Quiz on page 5

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AGRICULTURE IN EL SALVADOR

(Continued from page 9)

plans to introduce controlled breeding and selection, which is not commonly practiced in El Salvador. By using the three purebred pedigree Holstein and three milking Shorthorn bulls his father has, and by artificial insemination, he hopes to increase milk production, and eventually procure a purebred herd.

He plans to build a milking shed with stanchions, a maternity barn, calf pens, and a pasture shelter for calves and heifers as protection from the severe rain storms. By weaning the calves a week after birth, they can be cared for more easily, and the strong attachment of the mother to her calf will be prevented.

The feeding of pregnancy rations to freshening cows, concentrates to cows at milking time, and skim milk and starter rations to calves will be essential to good health and increased milk production. Another major improvement would be the enforcement of sanitation, largely nonexistent in El Salvador today.

Indoor milking, thus preventing rain and foreign matter from entering milk pails, screened milk houses and sterilization of old milking utensils are necessary. José does not feel that refrigeration in the milk house is necessary since the market is only ten miles from the farm, making it possible to send milk to the market the same day it is produced.

This is in keeping with his belief that certain methods, despite the benefits that would be derived, would be economically unsound. José is convinced that the greatest future in his country lies in milk, and he is determined to improve the dairy industry by the methods described above.

There is also a great future in poultry husbandry in his country. He feels that restaurant and hotel owners in his country would be eager to buy eggs with the knowledge that they were clean, fresh and non fertile. He would also use egg boxes and crates to facilitate easier handling and shipping.

José has visions of becoming a commercial egg producer, starting with a flock of a thousand White Leghorns. He would buy sexed chicks from United States hatcheries and would also import vitamins from us to supplement the rations. Corn and proteinaceous material such as fish meal and meat scraps, sup-

plemented by vitamins, would be the main constituents of the feed, since wheat, barley, and other grains can not be grown successfully in El Salvador.

He is also planning to raise meat birds, being especially interested in a cross between White Cornish and larger American breeds, which has been very successful in Florida. The full breastedness of the White Cornish and the larger size of the American breeds combine to give highly desirable meat qualities. Again, he would cater mainly to hotels and restaurants, and would sell the birds dressed. This would be a marketing innovation in his country.

José believes that by raising the quality of the agricultural products of El Salvador to our standards and by increasing production, the general welfare of the people would be improved tremendously. With increased production and the consequent availability of agricultural commodities, he intends to educate the people as to the nutritive value of milk and eggs.

These are the plans of a student who realizes his good fortune in being able to study agriculture in a country as advanced as the United States.

When the summer of 1952 rolls around, José Alfaro will leave N.A.C. for his native land, and with him he will bring the knowledge necessary to promote progressive agriculture in El Salvador.

Progress in Agriculture

(continued from page 4)

secretion of the large intestines has on Vitamin B12 and allowed the vitamin to accomplish its task in the body.

Doctor Waksman then spoke of highly speculative subjects. For example, he proposed that in the future perhaps plants could be made healthier by inoculating the soil with these antibodies. Such line of reasoning, according to Doctor Waksman, cannot be discarded since the findings of the last few years have greatly revolutionized the thoughts of the investigators of antibiotics.

The lecture definitely brought out the need for more scientific minded agriculturists in the United States. Scientific

farming is the only answer to the potential wealth and health of this country. We here at college are in part an assurance of its healthy continuance. In this respect is found the hopes for continued PROGRESS IN AGRICULTURE.

'50 Graduates

(Continued from page 6)

acres of wheat, fourteen acres of corn and ten of oats, which supplies him with his own scratch feed.

If Joe has any complaints at all about the education he received at N.A.C. he doesn't express them very loudly. I did hear a rather wistful desire that he had had more actual construction courses, such as Farm Structures, and had paid better attention in those he did have. He finds that during the present annual "slack" season he is more carpenter than anything else and at times like these the courses he had in Poultry Genetics are of little help.

Joe seems to have carved out a pretty good future for himself, his wife, and for the biggest incentive of all, little Jane, who was born last September. So the next time somebody tells you that the days of personal initiative are over, and that you'll spend half your life working for someone else or for the government, take a one mile ride down the road opposite the Alumni house. You'll find a mail box marked J. E. Fulcocy. Go in and see for yourself.

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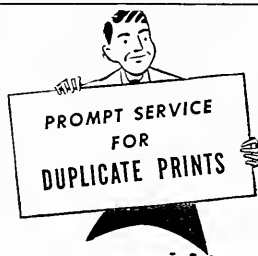
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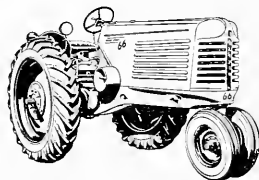
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